CONTENTS

PAGE

EDITORIAL

Alveolar-arterial gas tension gradients 1

ORIGINAL

Hypoxaemia and atelectasis produced by forced expiration 3
By J. F. Nunn, Ph.D., F.F.A.R.C.S., A. J. Coleman, M.B., F.F.A.R.C.S., T. Sachithanandan, F.F.A.R.C.S., N. A. Bergman, M.D., and J. W. Laws, M.R.C.P., F.F.R., Department of Anaesthetics and Department of Radiodiagnosis at Postgraduate Medical School, University of London and Royal College of Surgeons of England.

Venous blood as an alternative to arterial blood for the measurement of carbon dioxide tensions 13
By E. M. Harrison, B.Sc., M.B., B.Ch., F.F.A.R.C.S., and S. Galloon, M.B., Ch.B.(Cape Town), F.F.A.R.C.S., Department of Anaesthetics, Welsh National School of Medicine, Cardiff, Wales.

The action of adiabatic effects on the compliance of an artificial thorax ... 19
By D. W. Hill, M.Sc., Ph.D., F.Inst.P., A.M.I.E.E., and Virginia Moore, Royal College of Surgeons of England and Chelsea College of Science and Technology, London.

CLINICAL

Pethidine compared with pethidine plus levallorphan and with a placebo ... 23
By P. J. Tomlin, M.B., B.S., F.F.A.R.C.S., Department of Anaesthetics, Hammersmith Hospital and Postgraduate Medical School, London.

Cyclopropane induction to endotracheal ether anaesthesia in infants and children 29
By N. Paymaster, M.D., H. Wollman, M.D., and L. Bachman, M.D., Division of Anesthesiology of the Children's Hospital of Philadelphia, and the Department of Anesthesia of the University of Pennsylvania, Philadelphia, Pennsylvania, U.S.A.

PAGE

Postoperative shivering and hypoxaemia after halothane, nitrous oxide and oxygen anaesthesia 35
By H. D. Jones, M.B., B.S., F.F.A.R.C.S., and C. A. B. McLaren, M.B., Ch.B., F.F.A.R.C.S., Royal Air Force Hospital, Nocton Hall, Nocton, Lincoln, England.

Therapeutic inhalation anaesthesia ... 42
By B. V. Petrovsky, M.D., F.R.C.S.(I), and S. N. Yefuni, Dr. Med. Sci., Doc. Anaesth., Hospital Surgical Clinic and Research Laboratory of Anaesthesiology of the First Moscow Medical Institute, U.S.S.R.

Clinical studies of induction agents. XII: The influence of some premedicants on the course and sequelae of propanidid anaesthesia 51
By R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., and J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, and Musgrave Park Hospital, Balmoral, Northern Ireland.

Placental transfer of atropine and the effect on foetal heart rate 57
By A. H. John, M.B., F.R.C.S.(Edin.), M.R.C.O.G., Department of Obstetrics and Gynaecology, Welsh National School of Medicine, Cardiff, Wales.

CASE REPORT

Fatal cerebral anoxia following the use of lignocaine spray for bronchoscopy 61
By H. R. S. Harley, M.B., M.S., F.R.C.S., Department of Thoracic Surgery, United Cardiff Hospitals and Sully Hospital, Sully, Glamorganshire, K. M. Laurence, M.A., M.B., Ch.B., M.C.Path., Department of Paediatric Pathology, Department of Child Health, Welsh National School of Medicine, Llandough Hospital, Penarth, Glamorganshire, R. M. E. Seal, B.Sc., M.B., B.Ch., M.R.C.P., F.C.Path., Department of Pathology, Sully Hospital, Sully, Glamorganshire, and J. H. Stevens, M.B., B.S., F.F.A.R.C.S., Department of Anaesthetics, Cardiff Royal Infirmary, Cardiff, Wales.

PAGE

APPARATUS

Transportable apparatus for halothane anaesthesia 67
By K. F. Stephens, O.B.E., Q.H.A., M.B., F.F.A.R.C.S., The Queen Alexandra Military Hospital, London.

EDITORIAL

Aid to develop anaesthesia overseas ... 75

ORIGINAL

Simple methods for the determination of the concentrations of carbon dioxide and oxygen in blood 77
By R. J. Linden, M.B., Ch.B., Ph.D., J. R. Ledsome, M.D., and J. Norman, M.B., Ch.B., F.F.A.R.C.S., Cardiovascular Investigation and Research Unit, Department of Physiology, School of Medicine, University of Leeds, England.

Effects of the acid-base state upon the temperature coefficient of pH of blood 89
By G. W. Burton, B.Sc., M.B., Ch.B., F.F.A.R.C.S., Department of Anaesthetics, The Royal Infirmary, Bristol, England.

Effects of halothane and chloroform on the liver in protein-deficient mice ... 103
By D. Wingard, M.D., H. S. Davis, M.D., and D. Leonard, M.D., Departments of Anesthesiology and Pathology, Western Reserve University School of Medicine, Cleveland, Ohio, U.S.A.

CLINICAL

Observations on the accuracy of the rebreathing method for measurement of arterial carbon dioxide tension in anaesthetized children 111
By J. L. Webster, M.B., Ch.B., F.F.A.R.C.S., Department of Anaesthesia, United Sheffield Hospitals, Sheffield, England.

Carbon dioxide elimination during insufflation anaesthesia 117
By G. L. Zeitlin, M.B., B.Chir., F.F.A.R.C.S., D. H. Short, M.B., B.S., F.F.A.R.C.S., and M. E. Fielding, B.Pharm., M.B., B.S., F.F.A.R.C.S., The London Chest Hospital and The Middlesex Hospital, London.

Alterations in response to somatic pain associated with anaesthesia. XVII: Propanidid (FBA.1420) 121
By J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., and R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

PAGE

The clinical evaluation of narcotic and sedative drugs. I: Introduction ... 126
By D. Campbell, M.B., Ch.B., F.F.A.R.C.S., D.A., A. H. B. Masson, M.B., Ch.B., F.F.A.R.C.S., D.A., and W. Norris, M.D., F.F.A.R.C.S., Glasgow Royal Infirmary and Edinburgh Royal Infirmary, Scotland.

The incidence of visible muscular fasciculations following a second dose of suxamethonium chloride 129
By G. A. Harrison, M.B., B.S., F.F.A.R.A.C.S., Department of Anaesthetics, St. Vincent's Hospital, Sydney, Australia.

The effect on the eye of premedication with atropine 133
By K. S. Mehra, M.S., D.O., F.A.C.S., and P. Chandra, F.F.A.R.C.S., D.A., College of Medical Sciences, Benares, India.

Independent lung anaesthesia in severely wet lung cases 135
By H. Nassar, M.D., and F. Neematallah, M.D., Department of Anaesthetics, Faculty of Medicine, Alexandria University, Egypt.

APPARATUS

Increase in halothane concentration following refilling of certain vaporizers 137
By A. M. C. Jennings, M.B., B.Chir., F.F.A.R.C.S., and M. E. Hersant, M.B., B.S., M.R.C.S., L.R.C.P., The London Hospital, Whitechapel, London.

Fires and explosions with compressed gases: report of an accident 140
By Y. Ito, M.D., H. Horikawa, M.D., and K. Ichiyanagi, M.D., Department of Anesthesiology, Niigata University School of Medicine, Niigata, Japan.

EDITORIAL

Brave new world? 143

ORIGINAL

Effect of trimetaphan on haemodynamics and oxygen consumption during halothane anaesthesia in man ... 144
By R. A. Theye, M.D., and G. F. Tuohy, M.D., Section of Anesthesiology, Mayo Clinic and Mayo Graduate School of Medicine, Rochester, Minnesota, U.S.A.

PAGE

A study of the arterial clearance of Xenon 133 in man 126
By W. H. Isbister, M.D., P. F. Schofield, F.R.C.S., and H. B. Torrance, Ch.M., F.R.C.S., The Royal Infirmary, Manchester, England.

Duration of the neuromuscular blocking action of streptomycin 129
By S. S. Sikh, M.B., B.S., D.A., and K. S. Sachdev, M.D. (Pharmacol.), Anaesthesiology Section and Department of Pharmacology, M.P. Shah Medical College, Jamnagar, Gujarat, India.

CLINICAL

Prolonged nasotracheal intubation: a review of its development in a paediatric hospital 133
By I. H. McDonald, M.B., B.S., D.A., F.F.A.R.A.C.S., and J. G. Stocks, M.B., B.S., F.F.A.R.A.C.S., Department of Anaesthesia, Royal Children's Hospital, Melbourne, Australia.

The immediate postoperative care of the myasthenic patient following thymectomy 135
By W. L. M. Baird, M.B., Ch.B., F.F.A.R.C.S., and W. Norris, M.D., F.F.A.R.C.S., University Department of Anaesthetics, Royal Infirmary, Glasgow, Scotland.

Anaesthesia in patients with sickle-cell anaemia 137
By R. A. Browne, M.B., Ch.B., D.A., F.F.A.R.C.S., Department of Anaesthetics, University Hospital of the West Indies, Jamaica, West Indies.

The anaesthetist and the early management of acute head injuries ... 140
By S. M. Hart, M.B., F.F.A.R.C.S., United Liverpool Hospitals, England.

The clinical evaluation of narcotic and sedative drugs. II: A re-evaluation of pethidine and Pethilorfan 3
By D. Campbell, M.B., Ch.B., F.F.A.R.C.S., D.A., A. H. B. Masson, M.B., Ch.B., F.F.A.R.C.S., D.A., and W. Norris, M.D., F.F.A.R.C.S., Glasgow Royal Infirmary and Edinburgh Royal Infirmary, Scotland.

CASE REPORT

Repeated cardiac arrest with halothane 4
By M. K. Sykes, M.A., M.B., B.Chir., F.F.A.R.C.S., Departments of Anaesthesia, Postgraduate Medical School of London and Hammersmith Hospital, London.

PAGE

APPARATUS

Gas-holding apparatus for use in gas chromatography 153
By Carolyn M. Monahan, B.V.Sc., M.R.C.V.S., and I. F. H. Purchase, Ph.D., B.V.Sc., M.R.C.V.S., Department of Veterinary Clinical Studies, School of Veterinary Medicine, Cambridge.

EDITORIAL 158

SYMPOSIUM ON BASIC CONSIDERATIONS IN NEUROSURGICAL ANAESTHESIA

Methods for cerebral bloodflow measurements in man 161
By David H. Ingvar, M.D., and Niels A. Lassen, M.D., Laboratory of Clinical Neurophysiology, University Hospital, Lund, Sweden, and Department of Clinical Physiology, Bispebjerg Hospital, Copenhagen, Denmark.

Physiology of cerebral bloodflow ... 174
By A. Murray Harper, M.B., Ch.B., Wellcome Senior Research Fellow in Clinical Science; University Department of Surgery, Glasgow Royal Infirmary, Wellcome Laboratories, University of Glasgow, Scotland.

The effects of general anaesthetics on cerebral bloodflow and cerebral metabolism 181
By D. Gordon McDowall, M.B., Ch.B., F.F.A.R.C.S., University Department of Anaesthetics, Royal Infirmary, Glasgow, Scotland.

Adjuncts to neurosurgical anaesthesia 189
By Hubert L. Rosomoff, M.D., Division of Neurological Surgery, University of Pittsburgh School of Medicine, and the Veteran's Administration Hospital, Pittsburgh, Pennsylvania, U.S.A.

Respiration and the cerebrospinal fluid 199
By S. J. G. Semple, M.B., B.S., M.R.C.P., Department of Medicine, St. Thomas's Hospital Medical School, London.

General anaesthesia for intracranial surgery 208
By Marialuisa Bozza Marrubini, M.D., Clinica Neurochirurgica della Università di Milano, Italy.

PROCEEDINGS OF THE ANAESTHETIC RESEARCH GROUP (March 12) ... 215

EDITORIAL

Local anaesthesia 216

PAGE

210

225

236

246

262

268

288

295

PAGE

ORIGINAL

The measurement of recovery from anaesthesia 296
By M. D. Vickers, M.B., B.S., D.A., F.F.A.R.C.S., Department of Anaesthetics, University of Newcastle upon Tyne, England.

Placental transmission and neonatal metabolism of promazine 303
By J. Selwyn Crawford, F.F.A.R.C.S., and Susanna Rudofsky, Chicago Lying-in Hospital, Chicago, U.S.A.

The mode of administration of promazine as a factor in determining the extent of placental transmission ... 310
By J. Selwyn Crawford, F.F.A.R.C.S., and Susanna Rudofsky, Chicago Lying-in Hospital, Chicago, U.S.A.

Oxygenation during anaesthesia with controlled ventilation 314
By M. K. Sykes, M.A., M.B., B.Chir. (Cantab.), F.F.A.R.C.S., W. E. Young, M.D., and B. E. Robinson, M.B.(N.Z.), M.R.C.P., B.Med.Sc., Department of Anaesthesia, Postgraduate Medical School of London and Hammersmith Hospital, London.

A comment on arterial pressure waves during apnoeic oxygenation 326
By R. A. Millar, M.D., M.Sc., F.F.A.R.C.S., New Addenbrooke's Hospital, Cambridge.

CLINICAL

Studies of drugs given before anaesthesia. VI: The phenothiazine derivatives 332
By J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., J. Moore, M.D., F.F.A.R.C.S., W. J. Love, M.B., F.F.A.R.C.S., R. M. Nicholl, M.B. F.F.A.R.C.S., and R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

Amplitude observation during closed circuit halothane anaesthesia, with the vaporizer inside the circuit ... 354
By J. R. J. Beddard, F.F.A.R.C.S., Royal United Hospital, Bath, Somerset, England.

CASE REPORT

Postoperative respiratory inadequacy: an instructive case 363
By F. R. Ellis, M.B., Ch.B., F.F.A.R.C.S. D.Obst.R.C.O.G., Department of Anaesthetics, Royal Infirmary, Manchester, England.

PAGE

APPARATUS

A laryngeal spray and director ... 366
By Geoffrey Pierce, F.F.A.R.C.S., Department of Anaesthesia, St. Mary's Hospital, London.

EDITORIAL

Drugs and genes 371

ORIGINAL

The effect of hyperventilation on "excess lactate" production during anaesthesia 372
By M. K. Sykes, M.A., M.B., B.Chir. (Cantab), F.F.A.R.C.S., and P. M. Cooke, B.Sc. (Canada), M.T. (A.S.C.P.), Department of Anaesthesia, Postgraduate Medical School of London, and Hammersmith Hospital, London.

Effect of halothane anaesthesia and hypothermia on survival of dogs subjected to acute untreated haemorrhage 380
By E. Vajs, M.D., V. Rebernisak, M.D., and D. Pantelic, M.D., Institute of Experimental Medicine, Military Medical Academy, Beograd, Yugoslavia.

Effect of halothane anaesthesia on survival of dogs subjected to controlled posthaemorrhagic hypotension followed by retransfusion ... 388
By D. Pantelic, M.D., and E. Vajs, M.D., Institute of Experimental Medicine, Military Medical Academy, Beograd, Yugoslavia.

The systemic absorption of local analgesic drugs 394
By D. P. Braid, F.F.A.R.C.S., and D. B. Scott, M.D., F.F.A.R.C.S., Department of Anaesthetics, Royal Infirmary of Edinburgh.

Arterial oxygen tensions of patients awaiting surgery 405
By C. M. Conway, M.B., F.F.A.R.C.S., D.A., J. P. Payne, M.B., F.F.A.R.C.S., D.A., and P. J. Tomlin, M.B., F.F.A.R.C.S., Luton and Dunstable Hospital, Royal College of Surgeons of England, and Hammersmith Hospital, London.

CLINICAL

Respiratory and metabolic changes during methoxyflurane and halothane anaesthesia 409
By G. W. Black, M.D., F.F.A.R.C.S., and R. V. McKane, A.I.M.L.T., The Royal Belfast Hospital for Sick Children, and Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

PAGE

Clinical studies of induction agents. XIII: Liver function after propanidid and thiopentone anaesthesia 366
By R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., M. J. Kirwan, M.B., B.S., F.F.A.R.C.S., J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., D. W. Neill, M.Sc., and E. S. Mitchell, M.D., M.R.C.P.I., Department of Anaesthetics, The Queen's University of Belfast, The Royal Victoria Hospital, Belfast, and Musgrave Park Hospital, Balmoral, Belfast, Northern Ireland.

Methoxyflurane in dental anaesthesia: a blind trial 371
By R. D. Unkles, M.B., Ch.B., F.F.A.R.C.S., D.A., and J. I. Murray Lawson, M.B., Ch.B., F.F.A.R.C.S., D.A., Department of Anaesthetics, The Royal Infirmary, Dundee, Scotland.

CASE REPORT

The value of central venous pressure measurement during general surgery 372
By R. R. Watkin, M.B., B.S., F.F.A.R.C.S., Department of Anaesthetics, Guy's Hospital, London.

PHYSICS

Physics applied to anaesthesia. I: Some mathematical concepts 380
By D. W. Hill, M.Sc., Ph.D., F.Inst.P., M.I.E.E., Research Department of Anaesthetics, Royal College of Surgeons of England, London.

APPARATUS

Conditions for the formation and elimination of static electricity in a Danish hospital 388
By J. O. Hagelsten, M.D., and O. S. Larsen, B.Sc., Department of Anaesthetics, Bispebjerg Hospital, and the Laboratory of Technical Physics, The Technical College of Denmark, Copenhagen, Denmark.

The resistance to airflow of tracheostomy tubes, connections, and heat and moisture exchangers 394
By B. K. Hingorani, M.B., B.S. (Bombay), F.F.A.R.C.S., Department of Anaesthetics, Hammersmith Hospital and Postgraduate Medical School, London.

EDITORIAL

Intensive therapy and care 405

PAGE

ORIGINAL

A system for the measurement of respiratory and acid-base parameters in blood 415
By J. Norman, M.B., Ch.B., F.F.A.R.C.S., J. R. Ledsome, M.D., and R. J. Linden, Ph.D., M.B., Ch.B., The Cardiovascular Investigation and Research Unit, Department of Physiology, The School of Medicine, The University of Leeds, England.

Observations on electrically induced sleep in man 422
By F. Magora, M.D., A. Beller, M.D., L. Aladjemoff, M.D., A. Magora, M.D., and J. Tannenbaum, M.D., Departments of Anaesthetics, Neurosurgery and Physical Medicine, Hadassah Hebrew University Hospital, Jerusalem, Israel.

Acid-base changes in arterial blood associated with spontaneous and controlled ventilation during anaesthesia 428
By R. A. Millar, M.D., M.Sc., F.F.A.R.C.S., and B. E. Marshall, M.B., M.R.C.P.E., F.F.A.R.C.S., New Addenbrooke's Hospital, Cambridge.

Tetrahydroaminacrine in anaesthesia ... 430
By A. R. Hunter, M.D., F.R.C.S.(Glas.), F.F.A.R.C.S., The Departments of Anaesthesia and Pharmacology, University of Manchester, England.

The effect of maternal hypoxia on the heart rate of the foetus in utero ... 438
By A. H. John, M.B., F.R.C.S., M.R.C.O.G., Department of Obstetrics and Gynaecology, Welsh National School of Medicine, Cardiff, Wales.

GENERAL INTEREST

Craft and intellect. The John Snow memorial lecture, 1964 454
By W. W. Mushin, M.A., M.B., B.S., F.F.A.R.C.S., The Welsh National School of Medicine, University of Wales, Cardiff, Wales.

CLINICAL

Moderate hypothermia and circulatory arrest for neurosurgical operations ... 465
By V. Campkin, M.B., F.F.A.R.C.S., D.A., The Midland Centre for Neurosurgery and The United Birmingham Hospitals, Birmingham, England.

Anaesthesia for direct current shock in the treatment of cardiac arrhythmias 466
By A. Gilston, M.B., Ch.B., F.F.A.R.C.S., R. Fordham, M.B., B.Chir., F.F.A.R.C.S., and L. Resnekov, M.B., Ch.B., M.R.C.P., The Institute of Cardiology, National Heart Hospital, London.

PAGE

480

492

505

515

520

528

533

PAGE

The clinical comparison between tubocurarine and diallylnortoxiferine in children 540
By G. H. Bush, D.M., F.F.A.R.C.S., D.A., Alder Hey Children's Hospital, Liverpool, England.

PRELIMINARY COMMUNICATION

States of awareness during general anaesthesia 544
By B. W. Levinson, M.B., Ch.B., D.P.M., Johannesburg, South Africa.

CASE REPORT

Extraction of a globular, hard, slippery foreign body inhaled in the bronchial tree by postural dislodgment and direct laryngoscopy 547
By F. Neematallah, M.D., and H. Nassar, M.D., Department of Anaesthetics, Faculty of Medicine, Alexandria, Egypt.

APPARATUS

A method of rapid inflation of endotracheal tube cuffs 550
By R. P. Smithson, M.B., Ch.B., M.Med.(Anaes.), Department of Anaesthetics, The University of Cape Town and Groote Schuur Hospital, South Africa.

PROCEEDINGS OF THE ANAESTHETIC RESEARCH GROUP (July 3) 552

EDITORIAL

Sir Robert Macintosh 559
University of Pennsylvania bicentenary celebrations 559

ORIGINAL

The cardiovascular effects of nitrous oxide in the dog 560
By N. W. B. Craythorne, M.B., B.Ch., and T. D. Darby, Ph.D., Division of Anesthesiology and Department of Pharmacology, West Virginia University, Morgantown, U.S.A.

CLINICAL

Prolonged endotracheal intubation in infants and children 566
By T. H. Allen, M.B., B.S.(Adel.), F.F.A.R.A.C.S., and I. M. Steven, M.B., B.S.(Adel.), The Adelaide Children's Hospital, Inc., North Adelaide, South Australia.

PAGE

Experiences of an artificial ventilation unit 574
By W. Bargh, M.B., Ch.B., F.F.A.R.C.S., D.A., and K. B. Slawson, B.Sc., M.B., Ch.B., F.F.A.R.C.S., Department of Anaesthetics, Edinburgh University and Royal Infirmary, Edinburgh, Scotland.

Hexafluorenium extension of suxamethonium block 585
By V. R. van Hemert, M.D., and C. Pearce, M.B., B.S., F.F.A.R.C.S., Department of Anaesthetics, Utrecht University, Netherlands.

Investigation of the cardiovascular effects of hexafluorenium 591
By D. Duncalf, M.B., Ch.B., F.F.A.R.C.S., D.A., F. F. Foldes, M.D., E. Jacobson, M.D., and P. G. Vargas, M.D., Division of Anesthesiology, Montefiore Hospital and Medical Center, and the Department of Anesthesiology, Albert Einstein College of Medicine, New York, U.S.A.

Studies of drugs given before anaesthesia. VII: Pethidine-phenothiazine combinations 601
By J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., R. M. Nicholl, M.B., F.F.A.R.C.S., R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., J. Moore, M.D., F.F.A.R.C.S., and W. J. Love, M.B., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

Anaesthesia in West African patients with sickle-cell anaemia, haemoglobin SC disease, and sickle-cell trait 614
By A. A. Gilbertson, M.B., Ch.B., F.F.A.R.C.S., Ear, Nose and Throat Infirmary, Liverpool, England.

EDUCATIONAL

Anaesthesia training today 623
By J. Parkhouse, M.A., Oxon., M.D., F.F.A.R.C.S., Nuffield Department of Anaesthetics, Radcliffe Infirmary, Oxford.

APPARATUS

Inaccuracy of anaesthetic flowmeters caused by static electricity 637
By J. O. Hagelsten, M.D., and O. S. Larsen, B.Sc., Department of Anaesthesiology, Bispebjerg Hospital, Copenhagen, Denmark.

PAGE

EDITORIAL

A new lease of life? 643

SYMPOSIUM ON INHALATION ANAESTHETICS

The anaesthetic ethers 644
By C. M. Conway, M.B., B.S.(Lond.), F.F.A.R.C.S., Luton and Dunstable Hospitals and The Royal College of Surgeons, London.

Chloroform 655
By M. H. Armstrong Davison, M.D., F.F.A.R.C.S., Department of Anaesthetics, The University of Newcastle upon Tyne.

Divinyl ether 661
By Basil Finer, M.B., B.S.(Lond.), F.F.A.R.C.S., Department of Anaesthesia, University Hospital, Uppsala, Sweden.

Ethyl chloride 667
By J. I. Murray Lawson, M.B., Ch.B., F.F.A.R.C.S., Department of Anaesthetics, The Royal Infirmary, Dundee, Scotland.

Cyclopropane: the essential features... 671
By I. R. Verner, M.B., Ch.B.(Edin.), F.F.A.R.C.S., The Middlesex Hospital, London.

Trichloroethylene 681
By James Parkhouse, M.A.(Oxon.), M.D., F.F.A.R.C.S., Nuffield Department of Anaesthetics, The Radcliffe Infirmary, Oxford.

A review of the pharmacology of halothane 688
By Gerald W. Black, M.D., F.F.A.R.C.S., Royal Belfast Hospital for Sick Children, Northern Ireland.

Methoxyflurane 706
By P. J. Tomlin, M.B., F.F.A.R.C.S., Department of Anaesthetics, Hammersmith Hospital and Postgraduate Medical School, London.

PHYSICS

Physics applied to anaesthesia. II: Mechanics 710
By D. W. Hill, M.Sc., Ph.D., F.Inst.P., M.I.E.E., Research Department of Anaesthetics, Royal College of Surgeons of England, London.

EDITORIAL

Drug impurities 715

PAGE

ORIGINAL

The impurities in Fluothane: their biological properties 716
By J. Raventós, M.D., and P. G. Lemon, M.B., B.Sc., Research Department, Imperial Chemical Industries Limited, Pharmaceuticals Division, Alderley Park, Macclesfield, Cheshire, England.

Moderate hypothermia in man: haemodynamic and metabolic effects ... 738
By J. D. Michenfelder, M.D., A. Uihlein, M.D., E. F. Daw, M.D., and R. A. Theye, M.D., Section of Anesthesiology and of Neurological Surgery, Mayo Clinic and Mayo Foundation, Rochester, Minnesota, U.S.A.

Blood levels of mepivacaine after regional anaesthesia 746
By K-G. Dhunér, J. G. L. Harthon, B-G. Herbring and T. Lie, Department of Anaesthesia, I, Sahlgrenska Sjukhuset, Göteborg; Research Deparment AB Bofors, Mölndal; and Departments of Anaesthesia and Surgery, Lasarettet, Karlskoga, Sweden.

A comparison of the hydrochloride salts of lignocaine and prilocaine for epidural analgesia 753
By P. R. Bromage, M.B., B.S., F.F.A.R.C.S., Department of Anaesthesia, Royal Victoria Hospital and McGill University, Montreal, Quebec, Canada.

An evaluation of rebreathing in a modified T-piece system during controlled ventilation of anaesthetized children 762
By D. A. Nightingale, F.F.A.R.C.S., C. C. Richards, M.D., and A. Glass, A.B., Division of Anesthesiology of the Children's Hospital of Philadelphia, and the University of Pennsylvania School of Medicine, Philadelphia, U.S.A.

CLINICAL

Studies of drugs given before anaesthesia. VIII: Morphine 10 mg alone and with atropine or hyoscine 772
By R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., and W. J. Love, M.B., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

Studies of drugs given before anaesthesia. IX: Morphine with tacrine ... 779
By R. S. J. Clarke, M.D., B.Sc., F.F.A.R.C.S., and J. W. Dundee, M.D., Ph.D., F.F.A.R.C.S., Department of Anaesthetics, The Queen's University of Belfast, Northern Ireland.

PAGE

A trial of propanidid (FBA.1420): a new ultrashort-acting anaesthetic ... 785
By M. Swerdlow, M.D., M.Sc., F.F.A.R.C.S., D.A., Salford Royal Hospital, Manchester, England.

HISTORICAL

A history of nitrous oxide and oxygen anaesthesia. Part I: Joseph Priestley to Humphry Davy 790
By W. D. A. Smith, O.B.E., M.B., B.S., F.F.A.R.C.S., Department of Anaesthesia, Leeds University, England.

APPARATUS

Static electricity in anaesthetic flowmeters eliminated by radioactive pistol 799
By J. Hagelsten and O. S. Larsen, Department of Anaesthesiology, Bispebjerg Hospital, Copenhagen, Denmark.

EDITORIAL

Anaesthesia and autonomic activity ... 803

ORIGINAL

Preganglionic sympathetic activity and the effects of anaesthetics 804
By R. A. Millar, M.D., M.Sc., F.F.A.R.C.S., and T. J. Biscoe, M.B., B.Sc., Agricultural Research Council Institute of Animal Physiology, Babraham, Cambridgeshire, England.

Catecholamine and cardiovascular response to electro-convulsion therapy in man 833
By J. S. Gravenstein, M.D., A. H. Anton, Ph.D., S. M. Wiener, M.D., and A. G. Tetlow, M.D., Departments of Anesthesiology, Pharmacology and Psychiatry, College of Medicine, University of Florida, Gainesville, Florida, U.S.A.

The accuracy of capillary sampling for acid-base estimations 840
By K. Docrat, D.A., and Sheila Kenny, F.F.A.R.C.S., Anaesthetic Research Laboratory, Adelaide Hospital, Dublin, Eire.

CLINICAL

Electroencephalography in anaesthetic practice 845
By M. Marshall, M.B., F.F.A.R.C.S., Barbara P. Longley, and W. H. Stanton, Regional Neurological Centre, Newcastle General Hospital, Newcastle upon Tyne, England.

PAGE

An assessment of the Robertshaw double-lumen tube 858
By G. L. Zeitlin, M.B., B.Chir., F.F.A.R.C.S., D. H. Short, M.B., B.S., F.F.A.R.C.S., and G. H. Ryder, M.B., B.S., D.A., The London Chest Hospital and the Middlesex Hospital, London.

The anaesthetic management of patients with bronchopleural fistula with the Robertshaw double-lumen tube ... 861
By G. H. Ryder, M.B., B.S., D.A., D. H. Short, M.B., B.S., F.F.A.R.C.S., and G. L. Zeitlin, M.B., B.Chir., F.F.A.R.C.S., The London Chest Hospital and the Middlesex Hospital, London.

Neuroblastomas and anaesthesia ... 866
By J. V. Farman, M.B., F.F.A.R.C.S., Department of Anaesthetics, Cardiff, Wales.

HISTORICAL

A history of nitrous oxide and oxygen anaesthesia. Part II: Davy's researches in relation to inhalation anaesthesia 871
By W. D. A. Smith, O.B.E., M.B., B.S., F.F.A.R.C.S., Department of Anaesthesia, Leeds University, England.

CASE REPORT

Death from neuroblastoma 883
By J. V. Farman, M.B., F.F.A.R.C.S., Department of Anaesthetics, Cardiff, Wales.

EDITORIAL

Retrospect 889

ORIGINAL

Effects of halothane, ether and cyclopropane on respiration 890
By B. Brandstater, M.B., B.S., F.F.A.R.C.S., F.F.A.R.A.C.S., F.A.C.A., D.A., E. I. Eger (II), M.D., and G. Edelist, M.D., Cardiovascular Research Institute and Department of Anesthesia, University of California Medical Center, San Francisco, California, U.S.A.

Factors influencing the arterial oxygen tension during anaesthesia with artificial ventilation 898
By J. F. Nunn, Ph.D., M.B., Ch.B., F.F.A.R.C.S., N. A. Bergman, M.D., and A. J. Coleman, M.B., B.S., F.F.A.R.C.S., with the technical assistance of Mr. D. D. Jones, Departments of Anaesthesia, Royal College of Surgeons of England and Hammersmith Hospital, London.

PAGE

The effect of halothane on the sympathetic nerve supply to the myocardium 915
By I. F. H. Purchase, Ph.D., B.V.Sc., M.R.C.V.S., School of Veterinary Medicine, Madingley Road, Cambridge.

The placental transmission of pethidine 929
By J. Selwyn Crawford, F.F.A.R.C.S., and Susanna Rudofsky, Chicago Lying-in Hospital, Chicago, Illinois, U.S.A.

CLINICAL

Diazepam as a pre-operative tranquilizer in neuro-anaesthesia: a preliminary note 934
By M. Bozza Marrubini, M.D., and L. Tretola, M.D., Departments of Anaesthesia and Resuscitation, Neurosurgical Clinic of the University, Milan, Italy.

The effects of methoxyflurane (Penthrane) on the peripheral circulation in man 947
By G. W. Black, M.D., F.F.A.R.C.S., and L. McArdle, M.D., F.F.A.R.C.S.I., Royal Belfast Hospital for Sick Children and Mater Infirmorum Hospital, Belfast, Northern Ireland.

HISTORICAL

The first European trial of anaesthetic ether: the Dumfries claim 952
By T. W. Baillie, M.D., F.F.A.R.C.S., D.A., Dumfries Royal Infirmary, Scotland

A history of nitrous oxide and oxygen anaesthesia. Part III: Parsons Shaw, Dr. Syntax and nitrous oxide ... 958
By W. D. A. Smith, O.B.E., M.B., B.S., F.F.A.R.C.S., Department of Anaesthesia, Leeds University, England.

PAGE

PHYSICS

Physics applied to anaesthesia. III: The properties of liquids, gases and vapours 967
By D. W. Hill, M.Sc., Ph.D., F.Inst.P., M.I.E.E., Research Department of Anaesthetics, Royal College of Surgeons of England, London.

CASE REPORTS

Acute and delayed chloroform poisoning 972
By H. G. Schroeder, M.B., Ch.B., F.F.A.R.C.S., D.A., Department of Anaesthetics, Royal Infirmary, Sheffield, England.

Entry of nitrous oxide into a giant gas-filled ovarian cyst 976
By J. G. Whitwam, M.B., Ch.B., M.R.C.P., F.F.A.R.C.S., R. B. Scott, M.D., and I. Sunshine, Ph.D., Departments of Anesthesia, Obstetrics and Gynecology; University Hospitals, Western Reserve University of Medicine, and the Cuyahoga County Coroner's Office; Cleveland, Ohio, U.S.A.

An unusual cause of respiratory obstruction during anaesthesia 978
By Guy Screech, M.B., B.Chir., D.A., Department of Anaesthesia, Vancouver General Hospital, Vancouver, British Columbia, Canada.

Respiratory obstruction due to impaction of epiglottis 980
By W. F. K. Morrow, M.B., B.Ch., M.R.C.P., D.A., Lurgan and Portadown Hospital, Northern Ireland.

VETERINARY

Extradural anaesthesia in the pig ... 982
By S. C. Hopcroft, B.V.Sc., B.Sc. (Med), M.B., B.S., University Department of Surgery, The Queen Elizabeth Hospital, Woodville, South Australia.

PROCEEDINGS OF THE ANAESTHETIC RESEARCH GROUP 987